



El Niño/La Niña Update

Current Situation and Outlook

As of mid-February 2025, the equatorial Pacific is characterized by weak La Niña conditions, with slightly cooler-than-average sea surface temperatures in the east-central region, a pattern that has been present since December 2024. The latest forecasts from the WMO Global Producing Centres for Seasonal Prediction indicate that the sea surface temperatures in the equatorial Pacific are expected to become closer to average, with a 60% chance of returning to ENSO-neutral conditions during March-May 2025, while there is a 40% chance of La Niña conditions to persist. Forecasts for the subsequent overlapping period April-June 2025 suggest about 70% chance of ENSO-neutral conditions becoming established, while the chances of La Niña conditions will further reduce to about 30%. The chance of El Niño developing is negligible during the forecast period (March to June). Considering the well-known ‘spring predictability barrier’, which implies more modest levels of skill for current ENSO predictions, it is particularly important to exercise caution when interpreting long-range ENSO forecasts at this time of year. National Meteorological and Hydrological Services (NMHSs) will closely monitor changes in the state of ENSO over the coming months and provide updated outlooks, as needed.

As of mid-February 2025, both oceanic and atmospheric indicators continue to reflect weak La Niña conditions, characterized by slightly below-average sea surface temperatures across a significant portion of the central to eastern equatorial Pacific, a pattern that has been observed since December 2024 onward. Earlier, since May 2024, cold subsurface temperature anomalies have persisted east of the International Dateline, indicating significant cooling beneath the surface. However, during May to November 2024, the Oceanic Niño Index (ONI)—a three-month running mean of ERSST.v5 sea surface temperature anomalies in the Niño 3.4 region (5°N-5°S, 120°-170°W)—reflected an ENSO-neutral state in the central and eastern equatorial Pacific, highlighting a temporary stabilization of surface-level conditions. In recent months, strengthened trade winds have brought these cold anomalies to the surface, resulting in sea surface temperatures characteristic of La Niña conditions. The overlying atmospheric conditions, including surface and upper-level winds as well as patterns of cloudiness and rainfall, remain consistent with ongoing La Niña conditions. The Southern Oscillation Index (SOI), defined as the standardized Tahiti minus Darwin sea-level pressure difference, has

been only weakly within the La Nina range. Cloudiness near the equatorial International Date Line is below average, with enhanced convection and precipitation over Indonesia consistent with La Nina conditions. Overall, observed oceanic and atmospheric conditions indicate La Niña conditions.

WMO Global Producing Centres of Seasonal Prediction routinely issue global-scale climate forecasts for the coming months, using dynamical models initialized by recent observations. The latest forecasts and expert assessments indicate approximately 60% chance of a return to ENSO-neutral conditions in the central to eastern equatorial Pacific from March to May 2025, while the chances of La Niña conditions continuing are estimated at around 40% for the same period. Looking ahead to the second quarter of 2025 (April-June 2025), the chances of ENSO-neutral conditions rise to approximately 70%, while the chance of La Niña conditions is estimated at around 30%. The probability of El Niño developing can be effectively dismissed for the next four months, at least until June 2025. Uncertainty in the long-lead forecasts is greater than usual, however. This tendency, referred to as the boreal 'spring predictability barrier', reflects the somewhat lower skill in predicting the ENSO phase transitions at this time of year.

It is important to note that El Niño and La Niña are not the only factors that drive global and regional climate patterns, and further that the magnitudes of ENSO indicators do not directly correspond to the magnitudes of their effects. At the regional level, seasonal outlooks need to assess the relative effects of both the ENSO state and other locally relevant climate drivers. Regionally and locally applicable information is made available via regional and national seasonal climate outlooks, such as those produced by WMO Regional Climate Centres (RCCs), Regional Climate Outlook Forums (RCOFs) and National Meteorological and Hydrological Services (NMHSs).

In summary:

- The tropical Pacific has been experiencing weak La Niña conditions since December 2024, when observed sea surface temperature anomalies crossed the La Niña threshold. These conditions continue to be observed as of February 2025.
- Model predictions and expert assessments indicate a return to ENSO-neutral conditions with 60% chances during March-May 2025 and 70% during April-June 2025, with a relatively less chance (40% and 30% in the corresponding periods) of the current La Niña conditions persisting.
- The likelihood of El Niño conditions emerging is negligible during the first half of 2025.

The state of ENSO will continue to be carefully monitored by WMO Members and partners. More detailed interpretations of the implications for regional climate variability will be carried out routinely by the climate forecasting community over the coming months and will be made available through the National Meteorological and Hydrological Services.

For web links of the National Meteorological Hydrological Services, please visit:

<https://public.wmo.int/en/about-us/members>

For the latest Global Seasonal Climate Update (GSCU) based on WMO Global Producing Centres of Long-Range Forecasts, please visit:

<https://www.wmolc.org/gscuBoard/list>

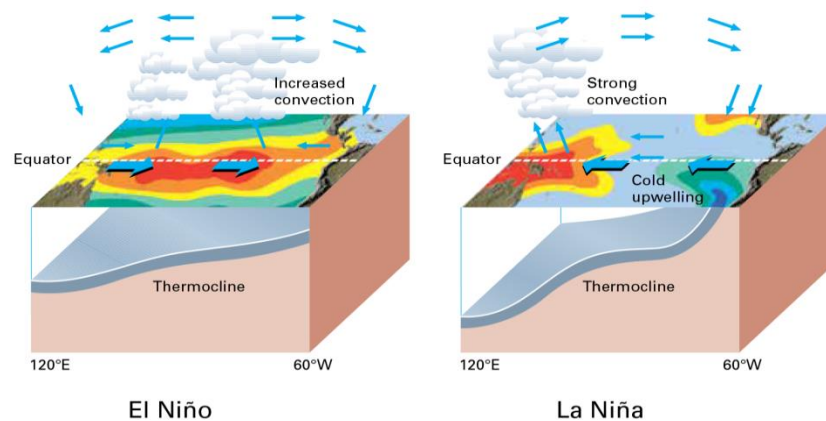
An archive of all WMO El Niño/La Niña Updates issued so far, including this one, is available at:

<https://community.wmo.int/activity-areas/climate/wmo-el-ninola-nina-updates>

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El Niño/La Niña Background



Typical circulation patterns during El Niño/La Niña (Source: WMO, 2003, “Climate into the 21st Century”).

Climate Patterns in the Pacific

Research conducted over recent decades has shed considerable light on the important role played by interactions between the atmosphere and ocean in the tropical belt of the Pacific Ocean in altering global weather and climate patterns. During El Niño events, sea surface temperatures in the central and eastern tropical Pacific Ocean become substantially warmer than normal. In contrast, during La Niña events, the sea surface temperatures in these regions become colder than normal. These temperature changes are strongly linked to major climate fluctuations around the globe and, once initiated, such events can last for 12 months or more. The strong El Niño event of 1997–1998 was followed by a prolonged La Niña phase that extended from mid-1998 to early 2001. El Niño/La Niña events change the likelihood of particular climate patterns around the globe, but the outcomes of each event are never exactly the same. Furthermore, while there is generally a relationship between the global impacts of an El Niño/La Niña event and its intensity, there is always potential for an event to generate serious impacts in some regions irrespective of its intensity.

Forecasting and Monitoring the El Niño/La Niña Phenomenon

The forecasting of Pacific Ocean developments is undertaken in a number of ways. Complex dynamical models project the evolution of the tropical Pacific Ocean from its currently observed state. Statistical forecast models can also capture some of the precursors of such developments. Expert analysis of the current situation adds further value, especially in interpreting the implications of the evolving situation below the ocean surface. All forecast methods try to incorporate the effects of ocean-atmosphere interactions within the climate system. The meteorological and oceanographic data that allow El Niño and La Niña episodes to be monitored and forecast are drawn from national and international observing systems. The exchange and processing of the data are carried out under programmes coordinated by the WMO.

WMO El Niño/La Niña Update

The WMO El Niño/La Niña Update is prepared on a quasi-regular basis (approximately every three months) through a collaborative effort between WMO and the International Research Institute for Climate and Society (IRI) as a contribution to the United Nations Inter-Agency Task Force on Natural Disaster Reduction. It is based on contributions from the leading centres around the world monitoring and predicting this phenomenon and expert consensus facilitated by WMO and IRI.

For more information on the Update and related aspects, please visit:

<https://public.wmo.int/en/our-mandate/climate/el-niñola-niña-update>